IN THE CLAIMS:

1.-16. (Cancelled)

17. (New) An inverse quantization method for obtaining inverse-quantized orthogonal transform coefficients by inverse quantizing, quantized orthogonal transform, coefficients, said method comprising:

obtaining a weighting matrix;

obtaining a quantization parameter;

calculating a level scale value (LSij) by multiplying a component value (Qbij) for the weighting matrix and a normalization value (Q2ij) respectively, the component value being located in a matrix position (ij) in the weighting matrix, and the normalization value being determined by a natural number indicating a remainder of the quantization parameter divided by an integer $N(\geq 2)$ and by the matrix position of the component value;

multiplying a quantized orthogonal transform coefficient and the level scale value; and

shifting a product resulted from a multiplication by the number of bits in accordance with the quantization parameter so as to obtain an inverse-quantized orthogonal transform coefficient.

18. (New) The inverse quantization method according to Claim 17,

wherein the normalization value is a value determined according to the matrix position of a component value in the weighting matrix.

19. (New) The inverse quantization method according to Claim 18,

wherein the normalization value is a value determined according to the matrix position of the component value with regard to a vertical and a horizontal position in the weighting matrix.

20. (New) An image decoding method for inverse quantizing and inverse orthogonal transforming quantized orthogonal transform coefficients to obtain a block image, said method comprising:

obtaining a weighting matrix;

obtaining a quantization parameter;

calculating a level scale value (LSij) by multiplying a component value (Qbij) for the weighting matrix and a normalization value (Q2ij) respectively, the component value being located in a matrix position (ij) in the weighting matrix, and the normalization value being determined by a natural number indicating a remainder of the quantization parameter divided by an integer $N(\geq 2)$ and by the matrix position of the component value;

multiplying a transform coefficient and the level scale value;

shifting a product resulted from a multiplication by the number of bits according to the quantization parameter so as to obtain an inverse-quantized orthogonal transform coefficient; and

obtaining a block image by an inverse orthogonal transforming the obtained inverse-quantized orthogonal transform coefficients through an addition/subtraction operation and a bit shifting operation.

21. (New) An image decoding apparatus which decodes coded image data to obtain a decoded block image on a block basis, said apparatus comprising:

an obtainment unit operable to obtain a weighting matrix and a quantization parameter, and calculate a level scale value (LSij) by multiplying a component value (Qbij) for the weighting matrix and a normalization value (Q2ij), the component value being located in a matrix position (ij) in the weighting matrix, and the normalization value being determined by a natural number indicating a remainder of the quantization parameter divided by an integer $N(\geq 2)$ and by the matrix position of the component value;

a multiplying unit operable to multiply a quantized orthogonal transform coefficient and the level scale value;

a shifter which shifts a product resulted from a multiplication by the number of bits according to the quantization parameter; and

an inverse orthogonal transformation unit operable to perform an inverse orthogonal transform on a result of the shifting through an addition/subtraction operation and a bit shifting operation to obtain an inverse orthogonal transformed block image.

22. (New) A processor for use in a decoding apparatus which decodes a moving picture, said processor comprising:

an integrated circuit, wherein the processor,

i) obtains a weighting matrix and a quantization parameter, using said integrated circuit,

ii) calculates a level scale value (LSij) by multiplying a component value (Qbij)) and a normalization value (Q2ij) respectively, the component value being located in a matrix position (ij) in the weighting matrix, and the normalization value being determined by a natural number indicating a remainder of the quantization parameter divided by an integer N($\geq$2) and by the matrix position of the component value,

iii) multiplies a quantized orthogonal transform coefficient and the level scale value,

iv) shifts a product resulted from the multiplication by the number of bits according to the quantization parameter so as to obtain an inverse-quantized orthogonal transform coefficient, and

v) performs inverse an orthogonal transform on a result of the shifting.

23. (New) A program for decoding an image using a computer, said program causing the computer to execute the following steps:

obtaining a weighting matrix;

obtaining a quantization parameter;

calculating a level scale value (LSij) by multiplying a component value (Qbij) and a normalization value (Q2ij) respectively, the component value being located in a matrix position (ij) in the weighting matrix, and the normalization value being determined by a natural number indicating a remainder of the quantization parameter divided by an integer $N(\geq 2)$ and by the matrix position or the component value;

multiplying a quantized orthogonal transform coefficient and the level scale value;

shifting a product resulted from the multiplication by the number of bits according to the quantization parameter so as to obtain an inverse-quantized orthogonal transform coefficient.

24. (New) A computer-readable storage medium on which the program according to Claim 23 is stored.